

*lit search*  
*6,018,954*  
*Reissue 10/059,826*

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1 of 1 DOCUMENT

UNITED STATES PATENT AND TRADEMARK OFFICE GRANTED PATENT

6018954  
February 1, 2000

Heat pump system and method for air-conditioning

REISSUE: January 30, 2002 - Reissue Application filed Ex. Gp.: 3744; Re. S.N.  
10/059,826 April 16, 2002

APPL-NO: 00973090

FILED-DATE: March 17, 1998

GRANTED-DATE: February 1, 2000

Selected file: PLUSPAT

**\*\* SS 1: Results 1**

1 / 1 PLUSPAT - @QUESTEL-ORBIT - image  
PN - US6018954 A 20000201 [US6018954]  
TI - (A) Heat pump system and method for air-conditioning  
IN - (A) ASSAF GAD (IL)  
AP - US97309098 19980317 [1998US-0973090]  
PR - US97309098 19980317 [1998US-0973090]  
IL11344695 19950420 [1995IL-0113446]  
WOUS9604935 19960409 [1996WO-US04935]  
IC - (A) F25D-017/06  
EC - F24F-005/00C3  
F25B-030/02  
ICO - R24F-201/10B  
PCL - ORIGINAL (O) : 062094000; CROSS-REFERENCE (X) : 062271000  
062305000 062310000 062332000  
DT - Corresponding document  
CT - US2672024; US2798570; US2952993; US4700550; US4941324  
STG - (A) United States patent  
AB - PCT No. PCT/US96/04935 Sec. 371 Date Mar. 17, 1998 Sec. 102(e)  
Date Mar. 17, 1998 PCT Filed Apr. 9, 1996 PCT Pub. No. WO96/33378  
PCT Pub. Date Oct. 24, 1996 There is provided a heat pump system  
including two (4, 6), at least similar units in fluid  
communication with each other, each unit having a housing (8, 8'),  
a first air/brine heat exchanger (12, 12'), a second  
brine/refrigerant heat exchanger (24, 24'), a brine inlet (10,  
10') for applying brine onto at least one of the heat exchangers,  
a brine reservoir (14, 14') and a pump (28) for circulating the  
brine from the reservoir to the inlet. The first and second heat  
exchangers are in closed loop fluid communication with each other  
and have a compressor (44) for circulating a refrigerant  
therethrough in selected directions.

1 / 1 LGST - @LEGSTAT  
PN - US 6018954 [US6018954]  
AP - US 973090/98 19980317 [1998US-0973090]  
DT - US-P  
ACT - 19980317 US/AE-A  
APPLICATION DATA (PATENT)  
US 973090/98 19980317 [1998US-0973090]  
  
20000201 US/A  
PATENT  
  
20020416 US/RF  
REISSUE APPLICATION FILED  
20020130  
UP - 2002-17

1 / 1 CRXX - @CLAIMS/RRX  
PN - 6,018,954 A 20000201 [US6018954]  
PA - Assaf, Gad IL  
ACT - 20020130 REISSUE REQUESTED  
ISSUE DATE OF O.G.: 20020416  
REISSUE REQUEST NUMBER: 10/059826  
EXAMINATION GROUP RESPONSIBLE FOR REISSUEPROCESS: 3744

Reissue Patent Number:

1 / 1 PAST - ©Thomson Derwent  
AN - 200216-001809  
PN - 6018954 A [US6018954]  
OG - 2002-04-16  
ACT - REISSUE APPLICATION FILED

Selected file: INPADOC

**\*\* SS 1: Results 9**

1 / 9 INPADOC - ©INPADOC  
PN - AU 55399/96 A1 19961107 [AU9655399]  
TI - HEAT PUMP SYSTEM AND METHOD FOR AIR-CONDITIONING  
IN - ASSAF GAD  
PA - ASSAF GAD  
AP - AU 55399/96-A 19960409 [1996AU-0055399]  
PR - IL 113446/95-A 19950420 [1995IL-0113446]  
WO 9604935/96(US)-W 19960409 [1996WO-US04935]  
IC - F25D-017/06

2 / 9 INPADOC - ©INPADOC  
PN - CN 1182475 A 19980520 [CN1182475]  
TI - HEAT PUMP SYSTEM AND METHOD FOR AIR-CONDITIONING  
IN - ASSAF GAD [IL]  
PA - GAS ASSAF [IL]  
AP - CN 96193382/96-A 19960409 [1996CN-0193382]  
PR - IL 113446/95-A 19950420 [1995IL-0113446]  
IC - F25D-017/06

3 / 9 INPADOC - ©INPADOC  
PN - EP 824659 A4 20001206 [EP-824659]  
TI - HEAT PUMP SYSTEM AND METHOD FOR AIR-CONDITIONING  
LA - ENG  
IN - ASSAF GAD [IL]  
PA - ASSAF GAD [IL]  
AP - EP 96912664/96-A 19960409 [1996EP-0912664]  
PR - IL 113446/95-A 19950420 [1995IL-0113446]  
WO 9604935/96(US)-W 19960409 [1996WO-US04935]  
IC - F25D-017/06; F24F-005/00; F25B-030/02  
DS - AT\* BE\* CH\* DE\* DK\* ES\* FI\* FR\* GB\* GR\* IE\* IT\* LI\* LU\* MC\* NL\* PT\*  
SE\*

1 / 1 LEGALI - ©LEGSTAT  
PN - EP 824659 [EP-824659]  
AP - EP 96912664/96 19960409 [1996EP-0912664]  
DT - EP-P  
ACTE - 19960409 EP/AE-A  
EP-APPLICATION  
EP 96912664/96 19960409 [1996EP-0912664]

19980225 EP/AK-A1 [+]  
DESIGNATED CONTRACTING STATES IN AN APPLICATION WITH SEARCH

REPORT:  
AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

19980225 EP/A1 [+]  
PUBLICATION OF APPLICATION WITH SEARCH REPORT

19980225 EP/17P [+]  
REQUEST FOR EXAMINATION FILED  
971017

19980701 EP/RAP1  
APPLICANT REASSIGNMENT (CORRECTION)  
ASSAF, GAD

19980708 EP/RIN1  
INVENTOR (CORRECTION)  
ASSAF, GAD

20001206 EP/AK-A4 [+]  
DESIGNATED CONTRACTING STATES MENTIONED IN A SUPPLEMENTARY SEARCH  
REPORT:  
AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

20001206 EP/A4 [+]  
SUPPLEMENTARY SEARCH REPORT  
20001019

20001206 EP/RIC1  
CLASSIFICATION (CORRECTION)  
7F 25D 17/06 A, 7F 24F 5/00 B, 7F 25B 30/02 B  
UP - 2000-49

4 / 9 INPADOC - @INPADOC  
PN - EP 824659 A1 19980225 [EP-824659]  
TI - HEAT PUMP SYSTEM AND METHOD FOR AIR-CONDITIONING  
LA - ENG  
IN - ASSAF GAD [IL]  
PA - WOLIN SUSAN BARBIE [IL]; ASSAF GAD [IL]  
AP - EP 96912664/96-A 19960409 [1996EP-0912664]  
PR - IL 113446/95-A 19950420 [1995IL-0113446]  
WO 9604935/96(US)-W 19960409 [1996WO-US04935]  
IC - F25D-017/06  
DS - AT\* BE\* CH\* DE\* DK\* ES\* FI\* FR\* GB\* GR\* IE\* IT\* LI\* LU\* MC\* NL\* PT\*  
SE\*

1 / 1 LEGALI - @LEGSTAT  
PN - EP 824659 [EP-824659]  
AP - EP 96912664/96 19960409 [1996EP-0912664]  
DT - EP-P  
ACTE - 19960409 EP/AE-A  
EP-APPLICATION  
EP 96912664/96 19960409 [1996EP-0912664]

19980225 EP/AK-A1 [+]  
DESIGNATED CONTRACTING STATES IN AN APPLICATION WITH SEARCH  
REPORT:  
AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

19980225 EP/A1 [+]  
PUBLICATION OF APPLICATION WITH SEARCH REPORT

19980225 EP/17P [+]  
REQUEST FOR EXAMINATION FILED  
971017

19980701 EP/RAP1  
APPLICANT REASSIGNMENT (CORRECTION)  
ASSAF, GAD

19980708 EP/RIN1  
INVENTOR (CORRECTION)  
ASSAF, GAD

20001206 EP/AK-A4 [+]  
DESIGNATED CONTRACTING STATES MENTIONED IN A SUPPLEMENTARY SEARCH  
REPORT:  
AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

20001206 EP/A4 [+]  
SUPPLEMENTARY SEARCH REPORT  
20001019

20001206 EP/RIC1  
CLASSIFICATION (CORRECTION)  
7F 25D 17/06 A, 7F 24F 5/00 B, 7F 25B 30/02 B

UP - 2000-49

5 / 9 INPADOC - ©INPADOC

PN - IL 113446 A0 19950731 [IL-113446]  
TI - HEAT PUMP SYSTEM AND A METHOD FOR AIR CONDITIONING  
PA - ASSAF GAD  
AP - IL 113446/95-A 19950420 [1995IL-0113446]  
PR - IL 113446/95-A 19950420 [1995IL-0113446]  
IC - F25B-000/00

1 / 1 LEGALI - ©LEGSTAT

PN - IL 113446 [IL-113446]  
DT - IL-P  
ACTE - 19981030 IL/FF [+]  
PATENTS GRANTED

19990411 IL/KB [+]  
PATENTS RENEWED

20010724 IL/KB [+]  
PATENTS RENEWED

UP - 2001-40

6 / 9 INPADOC - ©INPADOC

PN - IL 113446 A1 19980405 [IL-113446]  
TI - HEAT PUMP SYSTEM AND A METHOD FOR AIR CONDITIONING  
PA - ASSAF GAD [IL]  
AP - IL 113446/95-A 19950420 [1995IL-0113446]  
PR - IL 113446/95-A 19950420 [1995IL-0113446]  
IC - F25D-017/06; F25B-029/00

1 / 1 LEGALI - ©LEGSTAT

PN - IL 113446 [IL-113446]  
DT - IL-P  
ACTE - 19981030 IL/FF [+]

PATENTS GRANTED

19990411 IL/KB [+]  
PATENTS RENEWED

20010724 IL/KB [+]  
PATENTS RENEWED

UP - 2001-40

7 / 9 INPADOC - ©INPADOC

PN - JP 11504105 T2 19990406 [JP11504105]  
AP - JP 531798/96-A 19960409 [1996JP-0531798]  
PR - IL 113446/95-A 19950420 [1995IL-0113446]  
WO 9604935/96(US)-W 19960409 [1996WO-US04935]  
IC - F25D-017/00

8 / 9 INPADOC - ©INPADOC

PN - US 6018954 A 20000201 [US6018954]  
TI - HEAT PUMP SYSTEM AND METHOD FOR AIR-CONDITIONING  
IN - ASSAF GAD [IL]  
PA - ASSAF GAD [IL]  
AP - US 973090/98-A 19980317 [1998US-0973090]  
PR - US 973090/98-A 19980317 [1998US-0973090]  
IL 113446/95-A 19950420 [1995IL-0113446]  
WO 9604935/96(US)-W 19960409 [1996WO-US04935]  
IC - F25D-017/06

1 / 1 LEGALI - ©LEGSTAT

PN - US 6018954 [US6018954]  
AP - US 973090/98 19980317 [1998US-0973090]  
DT - US-P  
ACTE - 19980317 US/AE-A  
APPLICATION DATA (PATENT)  
US 973090/98 19980317 [1998US-0973090]

20000201 US/A  
PATENT

20020416 US/RF  
REISSUE APPLICATION FILED  
20020130

UP - 2002-17

9 / 9 INPADOC - ©INPADOC

PN - WO 9633378 A1 19961024 [WO9633378]  
TI - HEAT PUMP SYSTEM AND METHOD FOR AIR-CONDITIONING  
LA - ENG  
IN - ASSAF GAD [IL]  
PA - WOLIN SUSAN BARBIE [IL]; ASSAF GAD [IL]  
AP - WO US 9604935/96(US)-A 19960409 [1996WO-US04935]  
PR - IL 113446/95-A 19950420 [1995IL-0113446]  
IC - F25D-017/06  
DS - AM\* AT\* AU\* BB\* BG\* BR\* BY\* CA\* CH\* CN\* CZ\* DE\* DK\* EE\* ES\* FI\* GB\*  
GE\* HU\* IS\* JP\* KE\* KG\* KP\* KR\* KZ\* LK\* LR\* LT\* LU\* LV\* MD\* MG\*  
MN\* MW\* MX\* NO\* NZ\* PL\* PT\* RO\* RU\* SD\* SE\* SG\* SI\* SK\* TJ\* TM\* TT\*  
UA\* UG\* US\* UZ\* VN\* KE LS MW SD SZ UG AT BE CH DE DK ES FI FR GB  
GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN ML MR NE SN TD TG

1 / 3 LEGALI - @LEGSTAT

PN - JP 531798/96  
AP - JP 531798/96 - [1996JP-0531798]  
DT - JP-A  
ACTE - 19971020 JP/REFW-P  
CORRESPONDS TO PCT APPLICATION  
<WO 9633378> [WO9633378]  
UP - 1998-51

2 / 3 LEGALI - @LEGSTAT

PN - US 973090/98  
AP - US 973090/98 - [1998US-0973090]  
DT - US-A  
ACTE - 19980317 US/REFW-P  
CORRESPONDS TO PCT APPLICATION  
<WO 9633378> [WO9633378]  
UP - 1998-44

3 / 3 LEGALI - @LEGSTAT

PN - WO 9633378 [WO9633378]  
AP - WO 9604935/96(US) 19960409 [1996WO-US04935]  
DT - WO-P  
ACTE - 19960409 WO/AE-A  
APPLICATION DATA  
WO 9604935/96(US) 19960409 [1996WO-US04935]

19961024 WO/AK-A1 [+]

DESIGNATED STATES CITED IN A PUBLISHED APPLICATION WITH SEARCH  
REPORT

AM AT AU BB BG BR BY CA CH CN CZ DE DK EE ES FI GB GE HU IS JP KE  
KG KP KR KZ LK LR LT LU LV MD MG MN MW MX NO NZ PL PT RO RU SD  
SE SG SI SK TJ TM TT UA UG US UZ VN

19961024 WO/AL-A1 [+]

DESIGNATED COUNTRIES FOR REGIONAL PATENTS CITED IN A PUBLISHED  
APPLICATION WITH SEARCH REPORT

KE LS MW SD SZ UG AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT  
SE BF BJ CF CG CI CM GA GN ML MR NE SN TD TG

19961024 WO/A1 [+]

PUBLICATION OF THE INTERNATIONAL APPLICATION WITH THE  
INTERNATIONAL SEARCH REPORT

19970129 WO/121

EP: PCT APP. ART. 158 (1)

19970220 WO/DFPE

REQUEST FOR PRELIMINARY EXAMINATION FILED PRIOR TO EXPIRATION OF  
19TH MONTH FROM PRIORITY DATE

19971020 WO/ENP-A

ENTRY INTO THE NATIONAL PHASE IN:  
<JP 96531798>

19980226 WO/REG; DE/8642 [-]

DE: WITHDRAWAL  
<DE>

19980317 WO/ENP-A

ENTRY INTO THE NATIONAL PHASE IN:  
<US 98973090 19980317>

19981020 WO/NENP  
NON-ENTRY INTO THE NATIONAL PHASE IN:  
CA  
<CA>

UP - 1999-09

Session finished: 08 JUL 2002 Time 18:51:56